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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,804

03/14/2005

Yasuhisa Yamada

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181 7590 06/02/2009

MILES & STOCKBRIDGE PC  
1751 PINNACLE DRIVE  
SUITE 500  
MCLEAN, VA 22102-3833

EXAMINER

PILKINGTON, JAMES

ART UNIT

PAPER NUMBER

3656

NOTIFICATION DATE

DELIVERY MODE

06/02/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipdocketing@milesstockbridge.com  
sstiles@milesstockbridge.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,804	<b>Applicant(s)</b> YAMADA, YASUHISA	
	<b>Examiner</b> JAMES PILKINGTON	<b>Art Unit</b> 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-21, 23, 24 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-21, 23, 24 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Continued Prosecution Application*

The RCE filed on 4/27/09 is acceptable and an action on the RCE follows.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 18-21, 24 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duval, USP 6,343,993.

Re clms 17-21, 24 and 34, Duval discloses a telescopic shaft in which a male shaft (1) and a female shaft (2) are fitted to each other to be able to transmit torque therebetween and move relative to each other in an axial direction, comprising: a torque transmitting portion (34/35) provided in an outer peripheral portion (34) of said male shaft (1) and in an inner peripheral portion (35) of said female shaft (2) for transmitting torque; wherein said torque transmitting portion (34/35) comprises spline fitting portions (34) or serration fitting portions formed on an outer peripheral surface of said male shaft (1) and an splines (35) serration fitting portions formed on an inner peripheral surface of said female shaft (2) to receive the splines/fitting portions (34) of the male shaft (1), the splines and serrations of the male and female shaft always being in slidable contact with each other; a preloading portion (130/134) composed of a first axial

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groove (141) provided on an outer peripheral portion of said male shaft (1) and a second axial groove (142) formed on an inner peripheral portion of said female shaft (2) opposed to said first axial groove (141) at a peripheral position that differs from said torque transmitting portion (34/35), at least one rolling member (3) provided between the first axial groove (141) of the male shaft and the second axial groove (142) of the female shaft and an elastic member (130); wherein a plurality of said preloading portions (130/134) are provided between said male shaft (1) and said female shaft (2); a plurality of said torque transmitting portions (34/35) are provided respectively between adjacent preloading portions (130/134); wherein said preloading portions (130/134) are provided at intervals of 120° in a circumferential direction (see Figure 12) and said torque transmitting portions (34/35) are respectively provided between said preloading portions (130/134); wherein said torque transmitting portions (34/35) are provided at respective central portions in the circumferential direction between said preloading portions (130/134, the transmitting portions are centered between the preload portions see Figure 12); wherein said rolling member (3) comprises a spherical member (roller is a ball); wherein said telescopic shaft is constructed for incorporation in a vehicle steering mechanism (see Figure 1).

Duval as applied above does not disclose that the elastic member is disposed between the first axial groove and the rolling member and said elastic member including a leaf spring having opposite ends space in a peripheral direction of the telescopic shaft that are in contact with said male shaft and that are in contact with and depress said rolling member from respective sides thereof along the same peripheral direction.

Duval teaches that an elastic member (224) can be disposed between the first axial groove (205 Figure 20) and the rolling member (40) and that a leaf spring can (224) having opposite ends (left and right side of 24 in Figure 20) space in a peripheral direction of the telescopic shaft that are in contact with said male shaft (edges of leave spring contact the shaft see at 225 in Figure 22) and that are in contact and depress said rolling member (40) from respective sides there of along the same peripheral direction (contacts the rollers via 210).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an arrangement wherein the elastic member is disposed between the first axial groove and the rolling member and said elastic member including a leaf spring having opposite ends space in a peripheral direction of the telescopic shaft that are in contact with said male shaft and that are in contact with and depress said rolling member from respective sides thereof along the same peripheral direction, as taught by Duval in the species of Figure 20, as the elastic member and elastic member location which applies a preload on the male and female members to keep the ball in contact with both the races and the groove.

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duval '993 in view of Brown, USP 4,357,137.

Duval discloses all of the claimed subject matter as disclosed above.

Duval does not disclose the use of a solid lubricant film on one of the shafts.

Brown teaches that a solid self-lubricating plastic can be used increase the physical properties of the shaft (C3/L19-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a solid lubricating film in the telescopic assembly of Duval, as taught by Brown, to increase the physical properties (i.e. fatigue resistance) of the shaft.

### ***Response to Arguments***

4. Applicant's arguments filed 9/17/08 and 4/27/09 have been fully considered but they are not persuasive.

5. The Applicant argues that Duval does not disclose a sliding contact between the splines and grooves.

The claims do not define the structure of the sliding contact. As noted by the Applicant, Duval discloses a space between the grooves and splines however this is a sliding contact arrangement. The space between the components acts as a type of air bearing/slide which creates a contact between the splines and grooves. Without defining the structure of the sliding contact arrangement of the instant applicant Duval anticipates this limitation.

In the response filed 4/27/09 the Applicant states that the definition of contact is “a touching or meeting of bodies” however no citation for this definition is provided. Webster’s II New Riverside Dictionary states in order for things to be in contact requires a “state of being in communication” or “a useful connection.” These two definitions are

considered to be the broadest reasonable interpretation of the term "contact" since no definition was provided at original filing.

The Examiner would like to draw the Applicant's attention to USP 6,241,616 to Lightcap and USP 4,357,137 to Brown. If Applicant wishes to further argue that by "sliding contact" that the term limits the claim to a relationship where the two surfaces must be in direct contact with each other either Lightcap or Brown would make valid teaching references for such a feature.

6. Applicant's arguments with respect to claim 34 have been considered but are moot in view of the new ground(s) of rejection since Duval is being applied differently and addressing the newly added limitations regarding the leaf spring.

However, the interpretation of the term "contact," in the broadest sense, as discussed above, appear to be pertinent based on the Applicants amendment and comment.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES PILKINGTON whose telephone number is (571)272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JAMES PILKINGTON/  
Examiner, Art Unit 3656  
5/26/09

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656